

**NEC**  
ELECTRON DEVICE

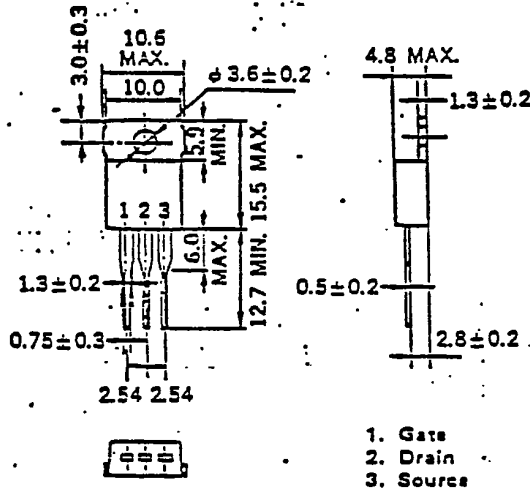
MOS FIELD EFFECT TRANSISTOR

# 2SJ140

## FAST SWITCHING P-CHANNEL SILICON POWER MOS FET

### PACKAGE DIMENSIONS

(Unit: mm)



### Features

Suitable for switching power supplies,  
actuator controls and pulse circuits

4V Gate Drive — Logic Level —

Large current switching :  $I_D(DC)=19A$

Low  $R_{DS(on)}$

No Secondary Breakdown

Absolute Maximum Ratings( $T_a=25^\circ C$ )

Drain to Source Voltage	$V_{DSS}$	- 60V
Gate to Source Voltage	$V_{GSS}$	$\pm 20V$
Continuous Drain Current	$I_D(DC)$	$\pm 19A$
Pulse Drain Current	$I_D(pulse)$	$* \pm 76A$
Total Power Dissipation	$P_T$	1.5W
Total Power Dissipation	$P_{T*}$	60W
Channel Temperature	$T_{ch}$	150 °C
Storage Temperature	$T_{stg}$	-55to+150 °C

\*  $T_{ch} \leq 150^\circ C$

\*\*  $T_c=25^\circ C$

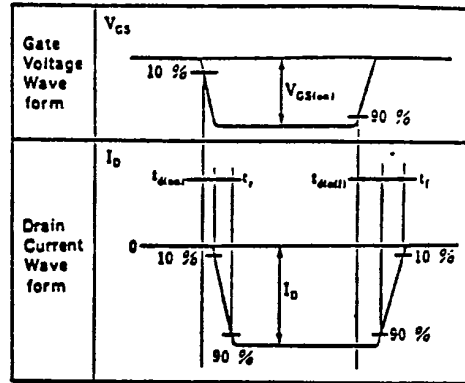
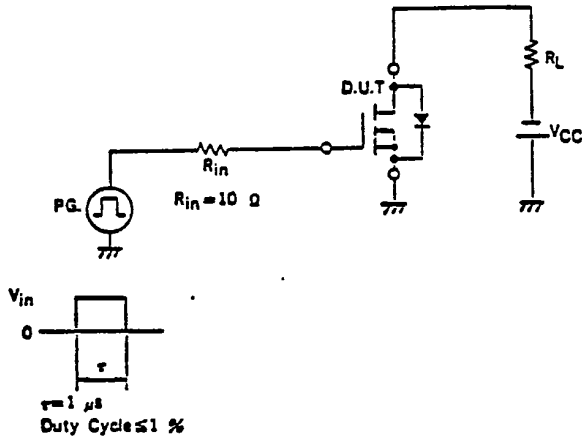
### Electrical Characteristics ( $T_a=25^\circ C$ )

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	$I_{DSS}$			- 10	$\mu A$	$V_{DS}=-60V, V_{GS}=0$
Gate to Source Leakage Current	$I_{GSS}$			100	nA	$V_{GS}=20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	-1.0		-3.0	V	$V_{DS}=-10V, I_D=-1.0mA$
Forward Transfer Admittance	$ y_{fs} $	5.0			S	$V_{DS}=-10V, I_D=-10mA$
Drain to Source On-State Resistance	$R_{DS(on)}$			0.2	$\Omega$	$V_{GS}=-10V, I_D=-10mA$
Drain to Source On-State Resistance	$R_{DS(on)}$			0.4	$\Omega$	$V_{GS}=-4.0V, I_D=-3.0A$
Input Capacitance	$C_{iss}$		2600		pF	$V_{DS}=-10V,$ $V_{GS}=0,$
Output Capacitance	$C_{oss}$		630		pF	$f=1.0MHz$
Reverse Transfer Capacitance	$C_{rss}$		130		pF	$I_D=-10A,$ $V_{GS(on)}=-10V,$
Turn-On Delay Time	$t_{d(on)}$		20		ns	$V_{cc}=-30V,$ $R_L=3\Omega$
Rise Time	$t_r$		160		ns	
Turn-Off Delay Time	$t_{d(off)}$		80		ns	
Fall Time	$t_f$		90		ns	

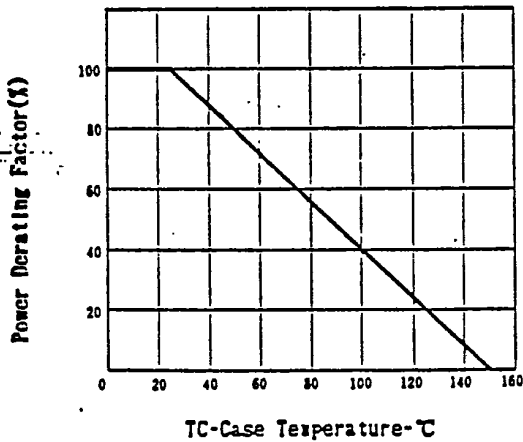
NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

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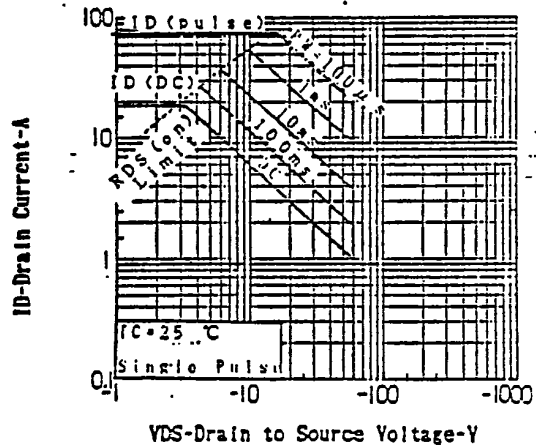
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



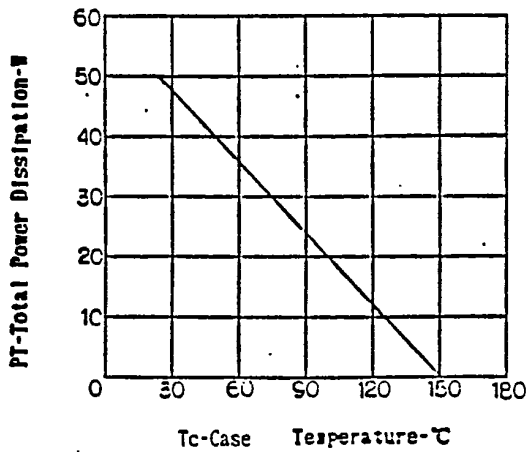
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



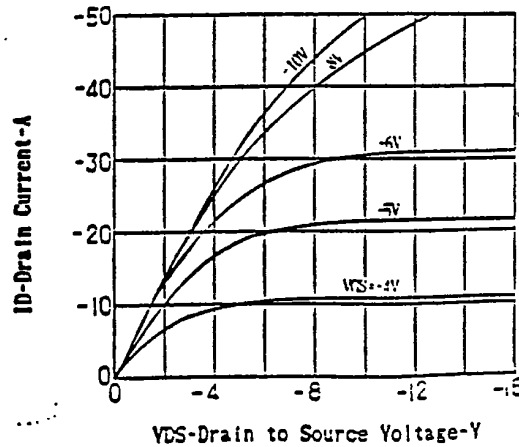
FORWARD BIAS SAFE OPERATING AREA

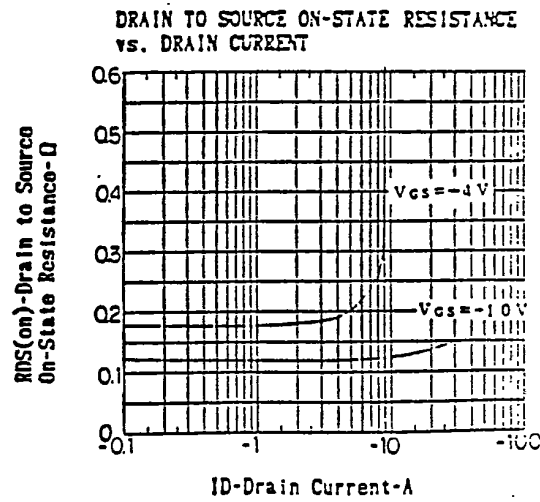
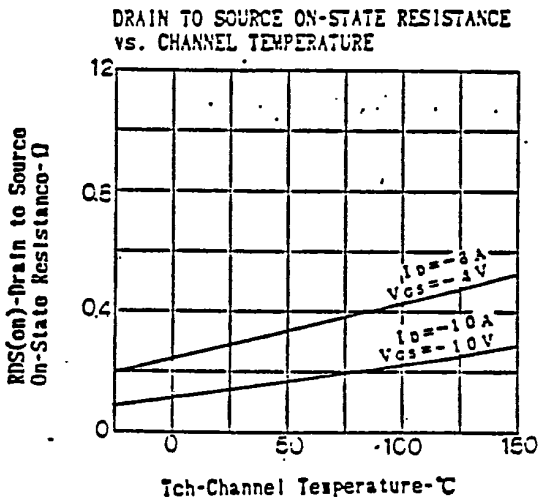
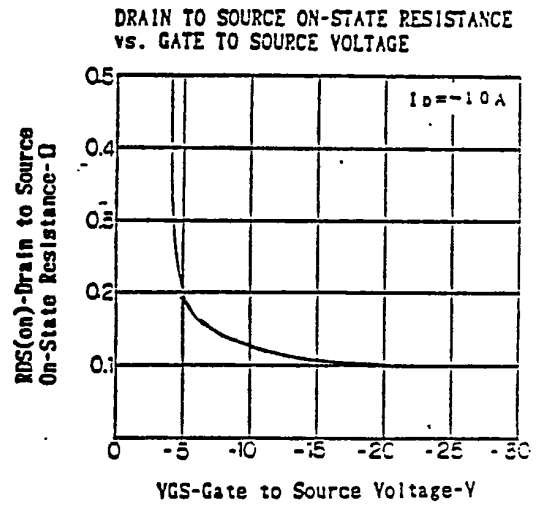
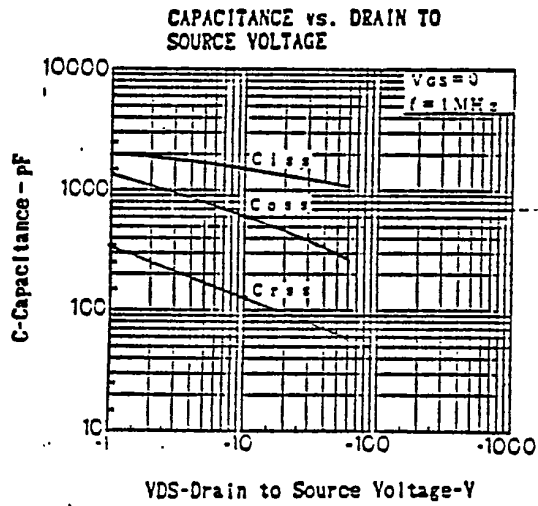
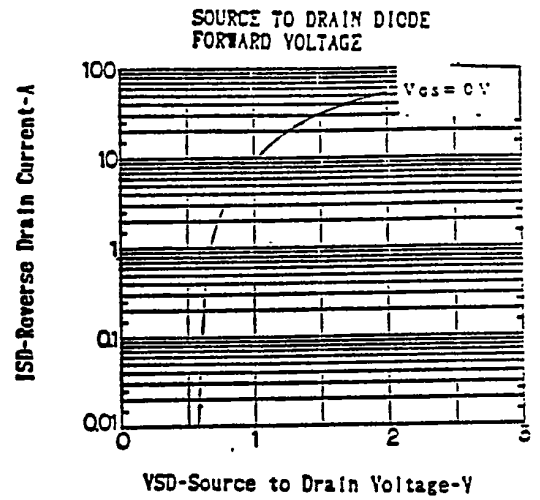
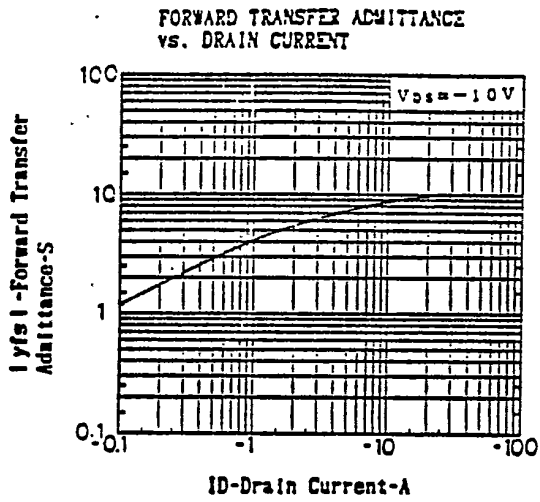


TOTAL POWER DISSIPATION vs. CASE TEMPERATURE

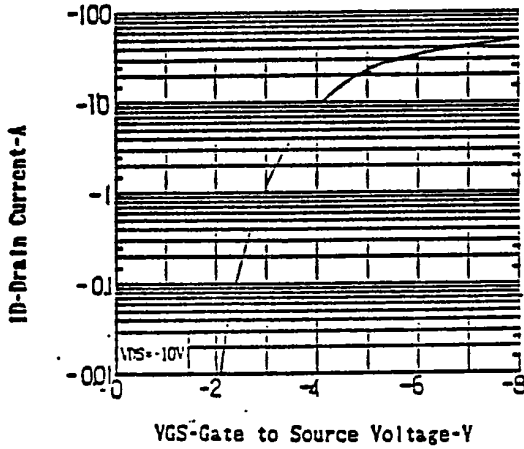


DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

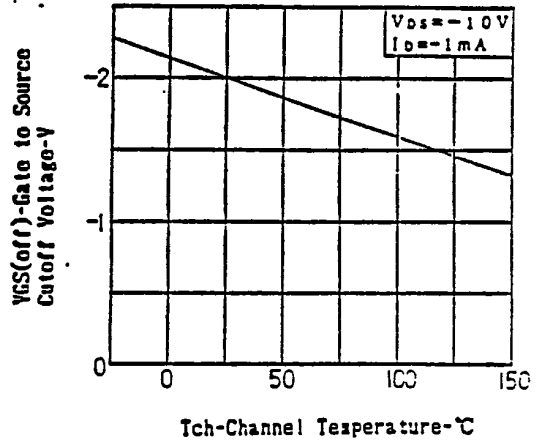




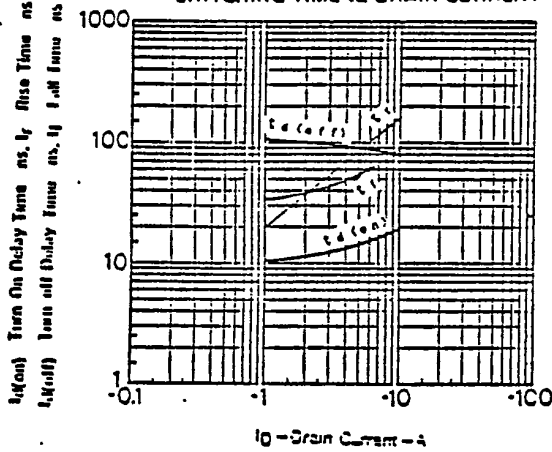
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING TIME vs DRAIN CURRENT



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